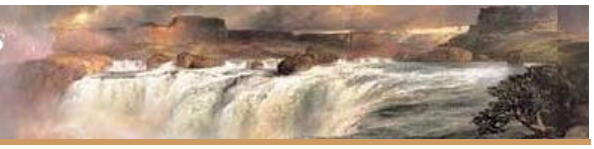
# Internet Mapping Users Guide

A Guide to all Internet Mapping Applications
Written for the

# Idaho Department of Water Resources

by Ben Britton



# Table of Contents

# *Browser Warnings and Tips*

## Conditions of Use

The Idaho Department of Water Resources is maintaining this web site as a public service. The Idaho Department of Water Resources strives to ensure that all technical data and other information made available to the public through this web site is accurate, complete and in conformance with the Idaho Public Records Act. Neither the Department of Water Resources nor the State of Idaho, however, assumes any legal responsibility for the accuracy or completeness of the information contained on this site.

Persons using information from this site for official purposes, or other purposes, for which accuracy and completeness are required, are hereby notified that they should first verify the information with the public records or other primary sources from which the information was obtained.

## Pop-up Windows

The use of multiple pop-up windows in the application allows you to compare records for more than one site or more than one year of data for a site.

**Do not use your browser's 'Back' button or the 'Refresh' button. If you wish to go back the previous screen use the "Zoom to previous extent" tool.**

If you need to refresh the screen due to a browser malfunction please close the browser and restart it.

This application is designed for use in Microsoft Internet Explorer, version 6, or newer. Instructions on how to disable Internet Explorer features that interfere with this application follow.

## Disable the Microsoft Internet Explorer Image Toolbar

Microsoft Internet Explorer displays an image toolbar  in the upper, left corner of images in the browser window. This toolbar allows you to save/print/e-mail the current image in your browser window. However, this toolbar is useless on IDWR's ArcIMS applications because the map-image is not available using the image toolbar or by right-clicking on the image. Further, the image toolbar interferes with the use of some tools.

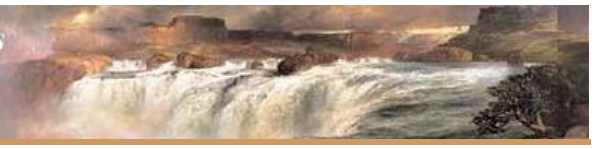
**Note:** If you wish to capture the screen, click on the "Capture Screen" tool.

To disable the MS IE image toolbar, do the following:

1. Click on "Tools" on the IE menu bar.
2. Select "Internet Options" from the "Tools" menu.
3. Click on the "Advanced" tab.
4. Scroll to the "Multimedia" section of the menu.
5. Un-check the "Enable Image Toolbar (requires restart)" checkbox.
6. Re-start the browser.

## Attention Windows XP Users

The disclaimer that displays when you browse to our web-site has a detailed description of how Microsoft's new "pop-up blocker" can cause problems with our applications. You can read Microsoft's explanation of how to disable/enable/configure the pop-up blocker at http://www.microsoft.com/windowsxp/using/web/sp2_popupblocker.mspx.



# Introduction

The Technical Services Bureau of the Idaho Department of Water Resources (IDWR) uses ESRI's Internet Map Server, known as ArcIMS, to serve fully interactive maps to remote users over the internet. Within a simple browser interface, users can access, display, and interact with data generated by the IDWR's engineers, scientists and GIS professionals.

The maps displayed on the IDWR web-site are composed of data stored in our Geographic Information System (GIS). ArcIMS web-based mapping applications offered by the IDWR display geographic information and query associated tabular data hosted by the IDWR's servers. The GIS servers access databases on other IDWR servers for information concerning hydrology, water rights, well drilling, flood hazards and wind power, as well as databases from other state, county and federal government agencies.

Maps created with ArcIMS differ from most others on the internet because, unlike sites such as "Mapquest®" or "Google Earth®," users have the ability to specify as many as eighty GIS layers, including high-resolution background images. Users can easily access IDWR databases by selecting points on the map. They can download entire GIS layers or clip and download portions of layers.

This guide explains how to use the tools that make this map interface. Customized, detailed guides are available for some of the IDWR's internet mapping applications.

## *Using the Map*

The map displayed at the center of the application window is interactive (**Figure 1**). You can use the tools on the left-hand side of the window for a variety of functions, such as zoom in to small section of the state, zoom out, pan around, measure linear features, etc.

The interactive map is a powerful way of sorting and highlighting the key fields in a database. The symbols add another level of understanding to tabular data, and this application allows you to access and query many of the IDWR's databases (as well as some from other agencies) through the map.

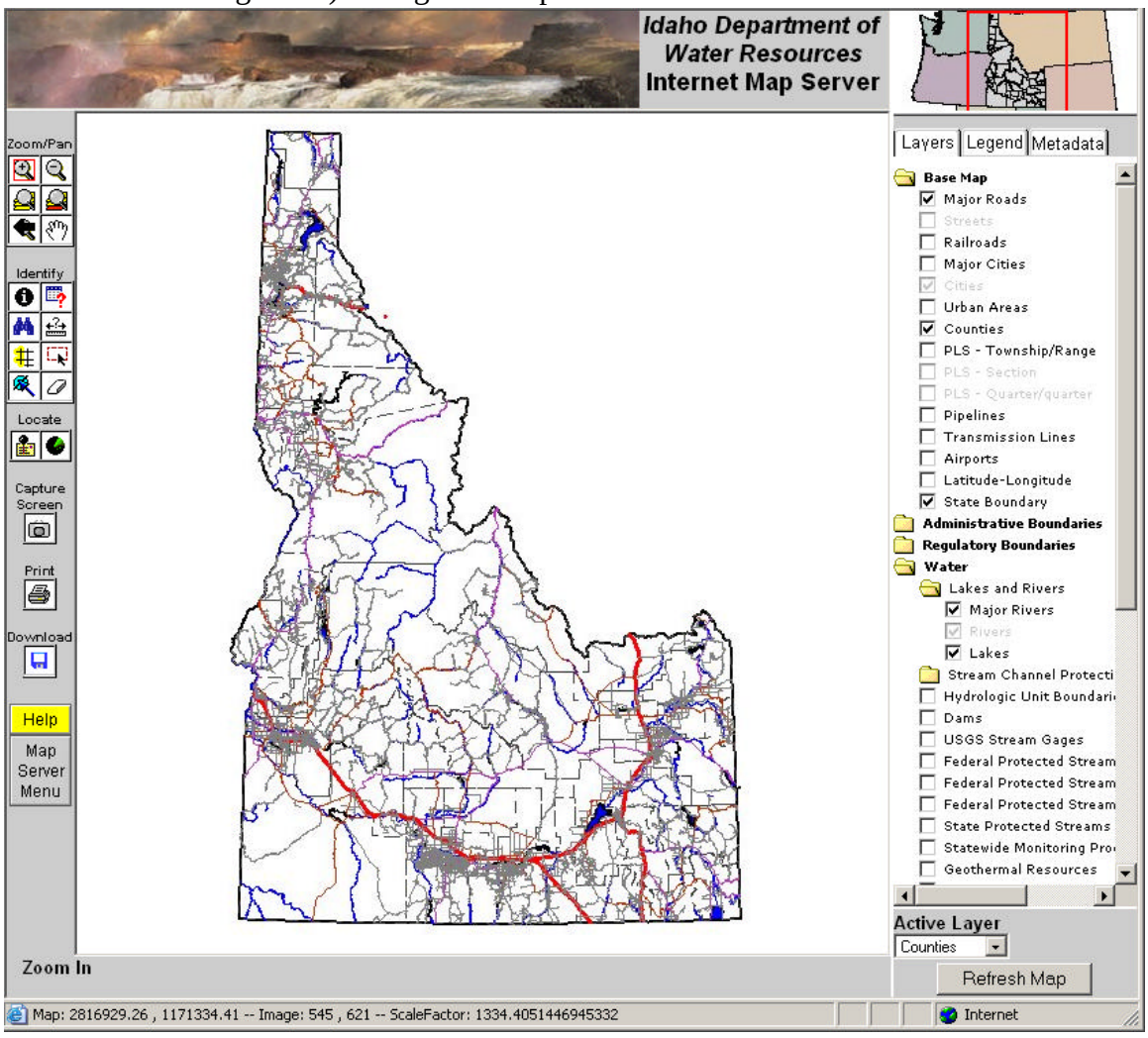



**Figure 1: The main window for the interactive mapping application.**

All GIS layers available in the application are shown in the table-of-contents at the right of the map. If a layer's checkbox or radio button is checked, the layer should be visible on the map. Radio buttons are used for statewide image layers because only one background image will be visible, regardless of how many were checked. Clicking on any radio button will cause the map to be redrawn. If you wish to turn off the visible image without substituting a different image, just click the radio button.

Some layers, such as those that deal with water rights and adjudications are not available when viewing a large portion of the state due to the large number of records accessed.

Users can query data layers, change the colors of lines and symbols used to draw layers and clip/download shape-files and images. **Layers will turn on/off as the map is redrawn at different scales.** Image layers will be turned off if the image becomes too pixelated (blotchy). Some labels (e.g. in the *Streets* layer) will turn on at the appropriate scale. Not all layers can be labeled.

## *Using the Table of Contents*

### Layer List


**Figure 2: Table of Contents, layer list.**

#### Using the layer list

- Click on folder name to expand or collapse the folder.
- Click on a checkbox to turn the associated layer on or off. A checkmark indicates that the layer will appear on the map.
- Click on layer name to change the way that layer is drawn on the map.

A gray layer name indicates that the layer is not available at the current map scale. For example, drawing large datasets such as wells or rivers for an area which encompasses several counties will cause an inordinately high amount of work to be done by the server and may be of little value to the user. Similarly, high-resolution images will not be available at a scale that would display an entire county.

You must click the "Refresh Map" button to redraw the map, showing the changes you made.

## Changing How a Layer is Drawn

Click on a layer name in the layer list and the pop-up window shown in **Figure 3** will provide you with options to change the way that layer is drawn.

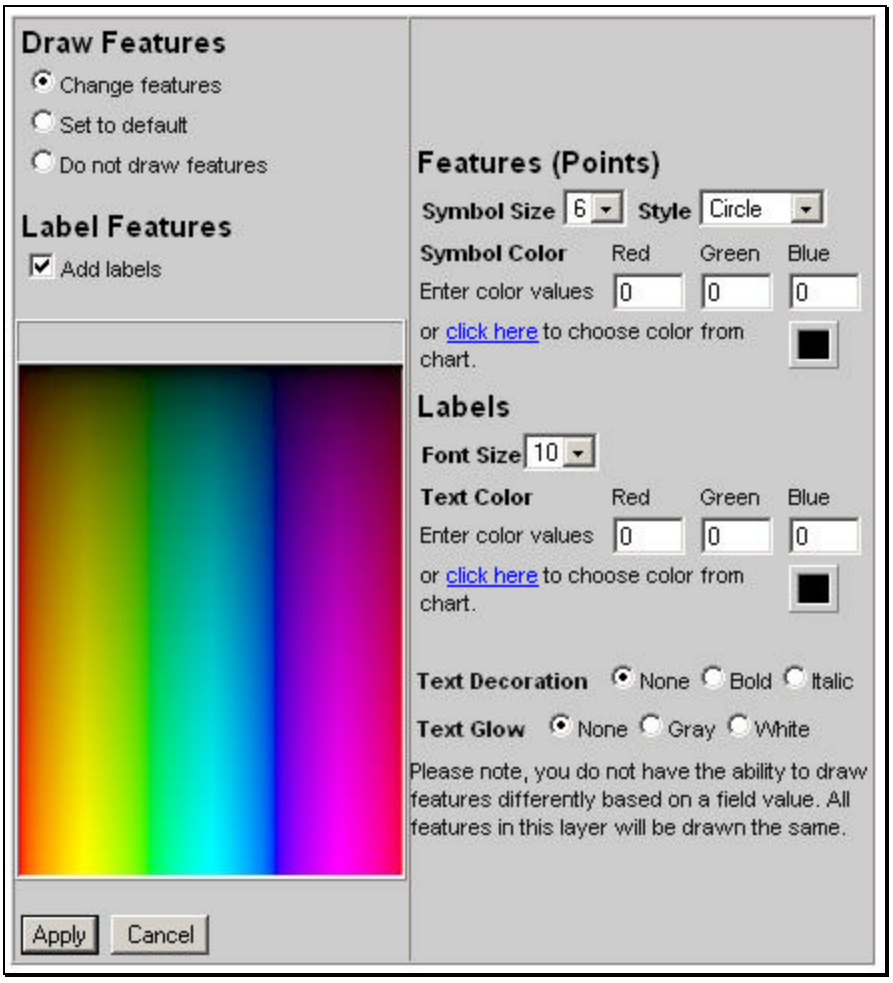



**Figure 3: Customizing map symbol color, type and annotation.**

You can add labels to the existing symbols, change the way the symbols are drawn or label the features but omit the symbols. The capability to make text "glow" is used to make the text standout against an image or densely drawn features.

As noted within the window, when you change the way a layer is drawn, all points, lines or polygons within that layer will be drawn the same. In doing so, the newly drawn map may not be as informative; this is especially true of the highways and rivers.

## Legend


**Figure 4: Table of Contents, Legend.**

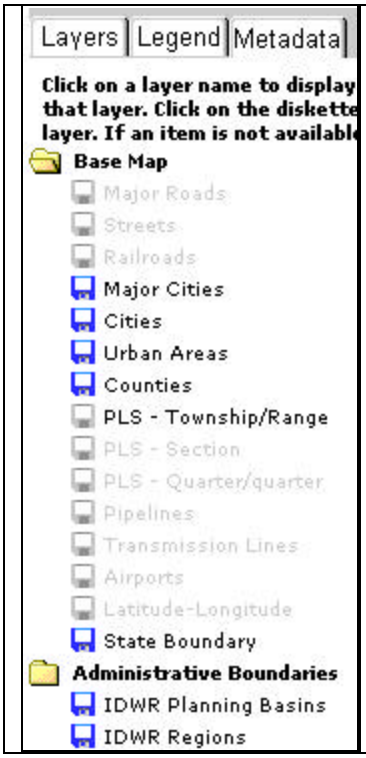
### Using the legend

The list of map symbols present on the legend will change as you display/hide layers using the "Layers" tab. If a layer is not marked as visible in the layers list it will not be represented in the legend. Some layers may be present in the legend but not in the map.

**Note:** You must click on the "Legend" tab, as illustrated at the top of **Figure 4**, to make the legend visible.

The MapAll application uses over 80 GIS layers. So, depending on the composition of your map, there is a possibility that the symbols for two layers may be similar enough that you would like to change the way they are drawn. Please refer to the section entitled "Changing How a Layer is Drawn."

### Metadata




**Using the metadata list**

- Click on the "diskette" icon to download the GIS layer from the IDWR's FTP site.
- Click on a layer name to view the metadata for that layer.

Layers shown in gray do not currently have metadata associated with them. Metadata may be available at http://www.idwr.idaho.gov/gisdata/gis_data.htm.

**Figure 5: Table of Contents, metadata list.**

## Using the Toolbar

The toolbar holds all of the tools necessary to select the area of the state you wish to view and extract information from the GIS layers in the map. Several of the tools on the toolbar will become "active" when you click them, meaning they can be used repeatedly without clicking on the tool.

The tools fall into three categories, moving and re-sizing maps, selecting features, and other.

Before you use any of the query tools you must make sure that the layer you wish to query is the "Active Layer." The name of the active layer is displayed in the drop-down list box at the lower, right of your screen.

## *Moving and Re-sizing the Map*

**Note:** Some layers will not be drawn at all scales. The Overview Map, in the upper, right corner of the browser window, is marked with a red square showing the area you are viewing.

**Zoom in –** Click on the tool to make it active. There are two ways to use this tool:

1. Click on an area of the map; the size of the features on the map will be doubled, centered where you clicked the map.

2. Click on the upper left corner of the area you wish to see (holding the mouse button down), drag the mouse pointer across the screen and release it at the lower right corner of the area you wish to view, then release the mouse button. The smaller the square you draw, the closer you zoom in!

**Zoom out –** Click on the tool to make it active. There are two ways to use this tool:

1. Click on an area of the map; the size of the features on the map will be halved, centered where you clicked the map.

2. This works just like step 2 of "Zoom in" except that the smaller the square, the smaller the features are drawn!

**Zoom to full extent –** Click on the tool; it does not become active. Draw the full extent of the application's area of interest – this is usually the full state. Only a few features, such as county boundaries, major rivers and major cities, will be drawn on the map.

**Zoom to active layer –**When you click this tool the map will zoom to the maximum extent of the active layer. This is useful for layers that cover only a portion of the state, otherwise, this tool does the same thing as the "Zoom to full extent" tool. The name of the active layer is shown at the lower right-hand corner of the screen.

**Zoom to previous extent –** When you click on this tool the map will show the area you was before the most recent pan/zoom request.

**Pan –** Click on the tool to make it active. Click somewhere on the map (hold the mouse button down) and drag the map just as you would move a paper map to view a different portion of the earth. Then, let go of the mouse button.

## *Selecting Features*

**Identify –** Click on the tool to make it active. Click on the feature of interest. Features may be so close that you "identify" more than one. A pop-up window displays the attributes for those features.

**Query –** Click on the tool; it does not become active. A pop-up window will guide you through composing a query to select features from the active layer. You can construct complex queries involving several fields.

The pop-up window displays detailed instructs on how to use this tool.

**Find –** Click on the tool; it does not become active. Enter a search-string in the pop-up form. Display a tabular list of feature-records in the active layer whose attributes contain the search-string. For example, with "Counties" as the active layer, searching for "ADA" would select and highlight Ada county and Adams county.

**Select by Rectangle –** Click on the tool to make it active. any features within or touching the rubber-band box

**Select by Line/Polygon –** draw a line or polygon

**Buffer –** Click on the tool; it does not become active. This tool enables you to select features from another layer that fall within a certain distance of the selected feature in the active layer. You must first select the features you wish to "buffer" using one of the selection tools described above.

A pop-window will ask for the layer ("Highlight features") from which to identify features within the buffer distance. Enter the width of the buffer. Click the "Create Buffer" button and the buffer area will be drawn in gray and all features from the "Highlight features" layer with be drawn in red.

If you check the option to "Display Attributes" another pop-up window will display the details about the highlighted features that fall within the buffer.

If you select the default layer ("No Layer") then a buffer of proper distance will be drawn on the screen but no features will be highlighted.

Example: You could select a feature from one layer (for example, with 'Rivers' as the active layer) and then use this tool to highlight points from the "Water Right

Point-of-Diversion" layer within 0.5 miles of the selected river.

If you have not selected features with another tool before using this one you will get an error message that states "No selected features to buffer."

**Measure –** Click on the tool to make it active. You can measure the distance between two points or the distance along a path. When you select this tool, a small window at the upper, left hand corner of the map appears. This window will show you the length of the line-segment you just "digitized" and the length of the total path.

Click on the map and wait for a red dot to appear where you clicked. This may take a few seconds because your PC is requesting the location of that point from our server. If you click the map again before the dot appears (or the red line, if it is the end of a line you wish to measure) you will get an error message from the server.

**Clear Selection –** Click on the tool; it does not become active. It immediately clears the highlighted features from the map and displays a message to that effect.

## *Detailed Instructions for Selecting Features*

### Use the Identify tool to show the attributes of feature(s) you select.

Make sure that the layer for which you want information is the Active Layer. Click on a feature and a new window will be displayed showing the record(s) returned from the database. If features are coincident or very close together you may get several rows of data.

You may need to inspect the results to make sure you get the data you wish. Any field value written in blue and underlined indicates that the data is hyperlinked to another table. Click on the underlined value to access the additional data. If the "Rec" or "Zoom to Feature" field is hyperlinked, clicking on that value will zoom the map to show that feature at a very large scale.

The following table is an example of what is displayed when you click on a polygon in the "Place of Use – Water Rights" layer. If you click the link in the "Basin" column, you will see a pop-up window containing the IDWR water rights record for that right.

POU - Water Rights

| Zoom to Feature | Basin | Sequence No. | Suffix | Basis | Priority Date | DecreeDate | Source | Source Quality | Water Use | Total Acres | Acre Limit | Max. Diversion Rate | Max. Diversion Volume | POU ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 63 | 3060 | | License | Aug 3 1956 | | GROUND WATER | | IRRIGATION | | | 1.97 | | 121351 |
| 2 | 63 | 2760 | | License | Feb 5 1949 | | GROUND WATER | | IRRIGATION | | | 0.6 | | 77499 |
| 3 | 63 | 2565 | | License | Sep 2 1958 | | JUNCTION DRAIN | | IRRIGATION | | | 10 | 4651 | 382854 |
| 4 | 63 | 9305 | | License | May 7 1975 | | GROUND WATER | | IRRIGATION | 47 | | 0.74 | 241.5 | 391460 |
| 5 | 63 | 161 | Q | Decreed | May 1 1886 | Jun 16 1908 | BOISE RIVER | | IRRIGATION | | | 1.1 | | 208760 |
| 6 | 63 | 250 | | Decreed | Jul 1 1895 | Jun 16 1905 | BOISE RIVER | | IRRIGATION | | | 0.66 | | 355713 |

**Figure 6: Results obtained by using the "Identify" tool.**

The hyperlinks in these tables are your key to the IDWR's database.

### Use the Query tool to query the database using field values, not features.

A new window will be displayed so that you may define your query. Select the field, operator and value from the drop-down lists and click ***Add to Query String***. Character values must be surrounded by quotation marks. You can create compound queries by using the "grouping" buttons located at the upper right of the window. An example query:

```
ADJ01.GISPROD.A019_VWSDEPODAJREC_01.BASIN = 65 AND
ADJ01.GISPROD.A019_VWSDEPODAJREC_01.LASTNAME = "Doe"
```

Any field value written in blue and underlined indicates that the data is hyperlinked to another table. Click on the underlined value to access the additional data. If the "Rec" field is hyperlinked, clicking on that value will zoom the map to show that feature at a very large scale.

## *Other Tools*

One or more of these tools may appear on the toolbar.

 **Locate Address –** Click on the tool; it does not become active. Enter a street address in the box labeled "Street." Enter a zip-code in the box labeled "Zone." You can enter a "Cross street" if you do not have an address. Click on the "Locate" button to get a list of locations in the state that match the address.

 **Locate –** Click on the tool; it does not become active. A pop-up window will ask which method you wish to use to locate a portion of Idaho. The options are latitude/longitude, legal description, zip-code, county name, city name or map coordinates (Idaho Transverse Mercator, NAD83). Make a selection and click on the "Enter Parameters" button; you will see another pop-up window that will accept the parameters necessary to zoom to the desired spot in Idaho.

 **Capture Screen –** Click on the tool: it does not become active.

 **Print –** Click on the tool: it does not become active. A pop-up window will give instructions on how to set your browser to allow for proper printing. Enter a title for your map, click the button to select either a "printable web-page" or PDF and press the "Submit" button. A new web-page will be sent to your PC. Use the browser's print button to send the page to the printer.

 **Show Pixel Values --** Click on the tool to make it active. While this tool is active, when you click on a pixel in the active image layer, the values for the current pixel will be shown on the browser's status bar.